CLAIMS:

1.   A apparatus comprising:

a device;

an arm assembly having a first end connected to a fixed support and a second end connected to the device, said arm assembly being having actuating means for positioning the device;

a sensor configured to detect and provide information about a subject within a sensing range of the device; and

a processor to process said information, the processor being configured to determine a location of the subject, determine a first location for the device and control the actuating means to move the arm assembly to position the device at a second location proximate to the first location.

2.   The apparatus of claim 1, wherein the first location and the second location are the same.

3.   The apparatus of claim 1, wherein the processor determines a path of the movement of the arm assembly to the second location using inverse kinematics.

4.   The apparatus of claim 1, wherein the processor determines a path of the movement of the arm assembly to the second location using path planning.

5.   The apparatus of claim 1, wherein the processor determines the second location using inverse kinematics.

6.   The apparatus of claim 1, wherein the fixed support is a single point.

7.   The apparatus of claim 6, wherein the fixed support is a pole.

8.   The apparatus of claim 1, wherein the device is a screen.

9.   The apparatus of claim 8, wherein the screen is a shield.

10.   The apparatus of claim 9, wherein the shield is a lens and thyroid protector.

11.   The apparatus of claim 8, wherein the screen is a display screen.

12. The apparatus of claim 11, wherein the display screen is a video monitor.

13. The apparatus of claim 1, wherein the second location is chosen from two or more predetermined positions.

14. The apparatus of claim 1, wherein the processor causes the actuating means of the arm assembly to move the device to a rest position if the subject is not detected.

15. The apparatus of claim 1 further comprising a second sensor, the second sensor being configured to detect the presence of a person who is not the subject and being operatively coupled to the arm assembly to prevent movement of the arm and the device if any said person who is not the subject is detected.

16. The apparatus of claim 1 wherein the first location is determined based on optimal viewing of the device.

17. The apparatus of claim 1 wherein the first location is determined based on optimal use of the device by the subject.

18. The apparatus of claim 1 wherein the first location is determined based on optimal viewing by the subject through the device.

19. The apparatus of claim 1 wherein the positions of the subject and device are monitored with respect to each other and a warning is displayed on a screen if certain changes in said positions are detected.

20. The apparatus of claim 1 wherein the positions of the subject and device are monitored with respect to each other and an alarm is activated if certain changes in said positions are detected.

21. A method for positioning a device comprising:

    (a)   calculating a window of allowable positions (201);

    (b)   calibrating a sensor with respect to a first user location (202);

    (c)   calculating an ideal position (203) of the device based upon the first user location;

(d)   calculating an achievable position within said window nearest the ideal position (204); and

(e)   moving the device within the window of allowable positions to the achievable position (205).

22.   The method of claim 21 further comprising:

calculating (206) a second user location from sensor data collected after the first user location was determined;

comparing the second user location with a repositioning criterion;

repeating the step of calculating (206) a second user location from sensor data collected after the first user location was determined and comparing the second user location with the repositioning criterion, until the repositioning criterion is met (209); and

repeating steps (c) and (d) of claim 21 to calculate a second ideal position of the device based on the second user location and a second achievable position; and

moving the device within the window of allowable positions to the second achievable position (205).